

User Manual

54 Mbps* Wireless Ethernet Converter with AOSS WLI3-TX1-G54



System Requirements

- ▶ Desktop or Notebook computer with an Ethernet (RJ-45) port (for configuration purposes).
- ▶ Web Browser 5.0 or later.
- ▶ 802.11b or 802.11g access point (Infrastructure Mode) OR a different computer with an 802.11b or 802.11g wireless adapter (Ad-hoc Mode).

AOSS Installation

If your Wireless Router/Access Point supports Buffalo's AOSS technology, then it is recommended to use AOSS. If your Wireless Router/Access Point does not support AOSS technology, then please skip to the next page. The following steps will guide you through the AOSS process.

- ▶ Plug the Ethernet Converter's AC Adapter into a wall outlet. Connect the power connector to the back of the Ethernet Converter.
- ▶ After 30 seconds, the wireless light on the Ethernet Converter will become solid. This signifies that the Ethernet Converter startup process has completed.
- ▶ Refer to the Ethernet Converter's AOSS supplement to begin the AOSS setup procedure.



Conventional Installation

Other than using AOSS, there are two conventional ways to configure the Ethernet Converter. One method is to use the Ethernet Converter Manager software. This method only works if there is a Windows 98/ME/2000/XP computer with a CD-ROM drive available on a computer network. The alternative method does not require software and works with any computer that has a Web Browser of 5.0 or later; this includes Macintosh and Linux machines.

If you have a Windows 98/ME/2000/XP machine with a CD-ROM drive available on your computer network, it is recommended to use the Ethernet Converter Manager to configure the Ethernet Converter. The following steps will guide you through configuring the Ethernet Converter via the Ethernet Converter Manager.

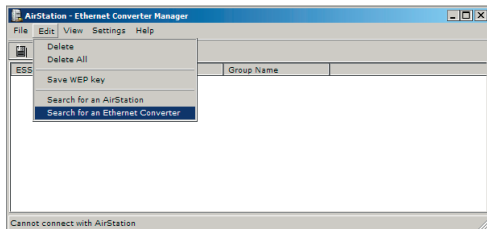
- ▶ With the included network patch cable, plug the Ethernet Converter's LAN port into an open port on your network's router, or on one of your network switches or hubs. If there are no ports available, you can temporarily remove a computer or other connected device and plug the Ethernet Converter to that port. You can plug the Ethernet Converter directly to the configuring computer, but will have to use the manual configuration found on **'Page 8'** of this Manual.
- ▶ Once the network cable has been plugged in, plug the Ethernet Converter's AC Adapter into an available power outlet. Then attach the power connector to the back of the Ethernet Converter. The boot up process takes 30 seconds and can be confirmed completed when both the Wireless and Ethernet lights are green.
- ▶ Return to the PC designated for configuration and insert the included Ethernet Converter CD-ROM into drive.
- ▶ The AirNavigator application should launch automatically. If it does not, browse your CD-ROM drive in Windows and run the **launch.exe** program.



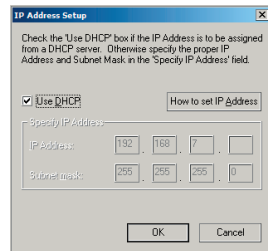
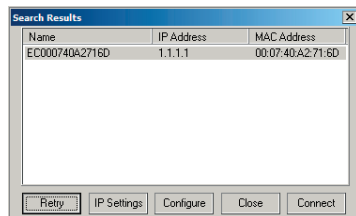
- Click on the text, '**Launch Setup**'.



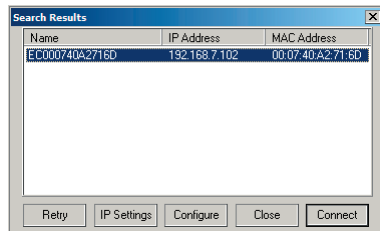
- The Ethernet Converter Manager software will run. Please select the '**Search for an Ethernet Converter**' option from the '**Edit**' drop down menu.



- ▶ The Ethernet Converter Manager will search for all Buffalo Ethernet Converters on your network. The process takes 15 seconds. Once completed, the '**Search Results**' will appear.
- ▶ The '**Search Results**' will list all Buffalo Ethernet Converters on the network. If there is more than one Ethernet Converter in the list, then select the Ethernet Converter you would like to configure. Press the '**IP Settings**' button to continue configuration.
- ▶ Check the '**Use DHCP**' checkbox and press the '**OK**' button. The Ethernet Converter will reboot; this process takes 15 seconds. The Ethernet Converter Manager will then re-scan the network for Ethernet Converters.



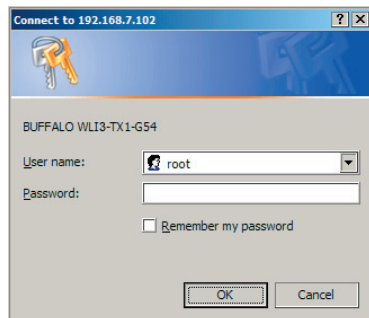
- ▶ The Ethernet Converter Manager Search Results will appear. If more than one Ethernet Converter is present, then select the proper Ethernet Converter from the list. Then press the '**Configure**' button.



- ▶ The Ethernet Converter Manager will connect you to the Ethernet Converter's web based configuration. You will be prompted for a username and password.

By default, the username is root and there is no password.

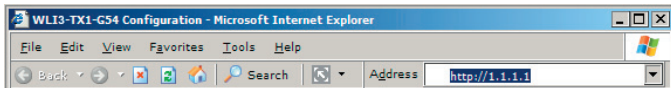
- ▶ After entering the user name, press the '**OK**' button. Please skip to '**Page 10**' to continue configuration.



Configuration of the Ethernet Converter without software is possible. The following steps will guide you through configuring your Ethernet Converter without software.

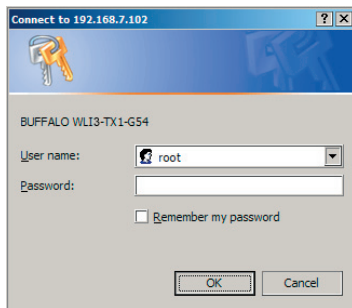
- ▶ Refer to your operating system documentation on how to configure a 'Static' IP Address. The Ethernet Converter has an IP Address of 1.1.1.1 by default. Thus, for successful configuration, the PC must be configured with 1.1.1.2 as its IP Address.
- ▶ With the included network patch cable, plug the Ethernet Converter's LAN port into an open port on your network's router, or on one of your network switches or hubs. If there are no ports available, you can temporarily remove a computer or other connected device and plug the Ethernet Converter to that port. You can plug the Ethernet Converter directly to the configuring computer.
- ▶ Once the network cable has been plugged in, plug the Ethernet Converter's AC Adapter into an available power outlet. Then attach the power connector to the back of the Ethernet Converter. The boot up process takes 30 seconds and can be confirmed completed when both the Wireless and Ethernet lights are green.

- Once your computer has a Static IP Address of 1.1.1.2, open your web browser and access the web page <http://1.1.1.1> by typing it into the 'Address' field and pressing enter (as shown above).



- You will be prompted for a username and password.

By default, the username is root and there is no password.



- After entering the user name, press the 'OK' button.

The Web Based Configuration is where changes to the Ethernet Converter take place. Through the Web Based Configuration you can change the wireless network the Ethernet Converter is associated with, the IP Address of the Ethernet Converter, and other important settings.

- After logging in on the previous pages, you will be greeted by the main configuration page. This page quickly shows you what network the Ethernet Converter is connected too as well as allowing you to search for available networks.
- The first step in the Web Based Configuration should be to search for an available wireless network. To do this, press the **'Search'** button in the 'SSID (Network Name)' table.
- After pressing the **'Search'** button, the 'Search for SSID' program will run. Select the appropriate wireless network that you would like to connect to and press the **'Select'** button. If encryption is enabled on the wireless network, you will need to enter the encryption key on a future step.



Search for SSID

Select	SSID (Network Name)	Wireless Channel	Signal Strength	Encryption	Wireless Mode	Network Type
<input type="radio"/>	FOOCA	3	STRONG	YES	802.11g	Infrastructure

NOTE: After selecting a wireless network, you must press the 'Apply Settings' button on the 'Wireless Settings' page. If you do not apply the settings, the Ethernet Converter will not connect to the selected wireless network.

Select Retry Cancel

- After selecting a wireless network to connect to, you will be returned to the main Web Based Configuration page.

The screenshot displays the Buffalo Air Station Web Based Configuration interface. At the top, the Buffalo logo and 'Air Station' branding are visible. The main section is titled 'WIRELESS Configuration'. It features a 'Wireless Connection Status' table with columns for SSID, Wireless Channel, Network Type, and Signal Strength, each with a refresh button. Below this, there are input fields for 'SSID (Network Name)', 'Wireless Network Type', and 'Encryption Key (WEP)', along with an 'Apply Settings' button and a 'Perform ADSS Sequence' button. The SSID field contains 'FOUCA' and the Network Type is set to 'Infrastructure (Wired/Wireless Network)'. The Encryption Key is set to 'WEP' and 'No Encryption'.

Wireless Connection Status			
SSID			Refresh
Wireless Channel			Refresh
Network Type			Refresh
Signal Strength			Refresh

SSID (Network Name) ? FOUCA Search

Wireless Network Type ? Infrastructure (Wired/Wireless Network) All Back (Go Back to Wired/Wireless Network)

Encryption Key (WEP) ? WEP No Encryption

Apply Settings

Perform ADSS Sequence ?

NOTE: If the wireless network you are attempting to connect to is not broadcasting its SSID, then you will be required to manually enter the SSID into the SSID field. After it has been manually entered, then press the '**Apply Settings**' button.

- The SSID field will be populated now. Depending on whether or not the wireless network is using WEP Encryption or not, the Encryption Key option may be set to **'Encrypt'** or **'No Encryption'**. If it is set to **'No Encryption'** then you are already connected to the wireless network, and you may skip to the last step on this page. If the Encryption Key option is set to **'Encrypt'** then you will need to enter the correct encryption type and key and press the **'Apply Settings'** button. The drop down menu references the type of encryption key used, either WEP, TKIP, or AES. It is important that you know not only your encryption key but also the type of key. Please consult your Router/Access Point's wireless settings and documentation for further information.
- The **'Finalize Connecting'** page will appear. Press the **'Back'** link.
- The main Web Based Configuration page will now list the connection information in the **'Wireless Connection Status'** table.



- ▶ The Ethernet Converter configuration is complete. Disconnect the Ethernet Converter from the network connection and power adapter, and move it to the desired location.
- ▶ Plug the Ethernet Converter's LAN port into the wired device that requires the wireless Ethernet Converter (devices could be an XBox, PS2, Home Theatre Media Adapter, or another computer system). Plug the AC Adapter into a nearby power outlet and connect the power connector to the Ethernet Converter. Power cycle the network device that is connected to the Ethernet Converter.
- ▶ If you set a static IP address on your computer on '**Page 8**', then reference the operating system documentation to restore the IP settings to obtain an IP Address automatically.
- ▶ For additional settings and features, please see the Ethernet Converter Manual located on the Ethernet Converter CD-ROM.

The Web Based Configuration also has several other settings to customize the way the Ethernet Converter operates. To access the Advanced Configuration settings, press the '**Advanced**' button on the main Web Based Configuration page. On all advanced settings pages, the '**Apply Settings**' button must be pressed anytime changes are made to a configuration page.

Wireless Settings - This page contains the settings that affect the wireless communication of the Ethernet Converter.



- ▶ **Multiple Client Support** - The multiple client support feature allows a switch or hub to be connected to the Ethernet Converter, allowing multiple clients to use the Ethernet Converter as their wireless connection. Enabling this feature allows for this use, disabling allows for only one device to be used behind the Ethernet Converter.
- ▶ **SSID** - The SSID is the name of the wireless device the Ethernet Converter is connecting to. It can be typed in manually or it can be searched for by pressing the '**Search**' button.
- ▶ **Wireless Network Type** - Select between the two wireless modes: Infrastructure (Access Point Based) or Ad-hoc (Client to Client).
- ▶ **Wireless Channel** - The channel will be automatically selected in Infrastructure networks. For Ad-hoc networks, both clients must be set on the same channel.



- ▶ **Wireless Mode** - The wireless mode only applies to Ad-hoc connections. If the Ethernet Converter is making an Ad-hoc connection with an 802.11b client, then select '802.11b' from the drop down menu. If an 802.11g client is connecting to the Ethernet Converter then select the 'Auto - 802.11g / 802.11b' option.
- ▶ **Basic Rates** - The basic rate set only applies to Ad-hoc connections. Select the proper rate set for Ad-hoc client the Ethernet Converter is going to associate to. If you are unsure, it is recommended to leave this setting set to 'Auto'.
- ▶ **Frame Bursting** - Frame Bursting technology allows for quicker wireless throughput speeds by shortening the overhead in each wireless packet. It is recommended to leave it enabled, as having it enabled presents no disadvantages in most network scenarios.
- ▶ **Wireless Output Power** - The wireless output power setting changes the power of the Ethernet Converter's internal radio. Reducing the output power can often reduce interference with other devices. It is recommended to leave the output power set at 100% unless interference with other networks or 2.4 GHz devices is apparent.
- ▶ **Data Encryption** - The data encryption table allows you to enter the necessary WEP or WPA settings into the Ethernet Converter. This Ethernet Converter supports WEP 64, WEP 128, TKIP, and AES. If WEP is selected, then a WEP key or series of WEP keys must be entered into the WEP key field(s). Please select whether the specific key is ASCII or HEX from the pull down list next to the key fields. If TKIP or AES is used, then enter the pre-shared key in the WPA-PSK field.

Network Settings - This page contains the network IP Address settings of the Ethernet Converter

- ▶ **Automatic IP Assignment** - This setting specifies the Ethernet Converter to obtain its IP Address from a DHCP server on the network. Consult with your network administrator regarding whether this device should obtain its IP Address from a DHCP Server.

- ▶ **Manual Assignment** - This setting specifies the Ethernet Converter to operate on a specific IP Address. This is often referred to as a Static IP Address. If a manual assignment is preferred, then you will be required to enter an appropriate IP Address and Subnet Mask for the Ethernet Converter.

■ **NOTE:** The IP Address is required for configuring the Ethernet Converter. Be careful when changing its address, as it may cause undesired operation. Also, please document any changes and update any browser bookmarks that may be referencing the Ethernet Converter Web Based Configuration.

- ▶ The Ethernet Converter Manager may be used to set the IP Address in the event of changing the IP Address inappropriately.
- ▶ The IP Address does not need to be in the range of the DHCP server's scope to successfully pass DHCP requests to the network client behind the Ethernet Converter.



System Information - This page contains a summary of the Ethernet Converter's settings.

- ▶ The tables present a summary of the settings on the Ethernet Converter. Settings cannot be changed from this page. If the Ethernet Converter is obtaining its IP Address from a DHCP server, then a release and renew button will be present at the bottom of the page. Releasing the IP Address will make the Ethernet Converter impossible to configure without re-initializing the device or using the Ethernet Converter Manager. Only release the IP Address if you are certain you want to do so.

The screenshot shows the 'System Information' page of the Buffalo AirStation web interface. On the left is a navigation menu with options: Windows Settings, Network Settings, Management, System Information (selected), Name & Password, Initialization/Reset, and Firmware Update. The main content area displays system details in a table:

Model & Version	HW: TXX-004 Rev.2.21
MAC Address	00:0F:4A:27:14:00
Wireless Network	WOLBPCLOUD_Wi3.3T.X18
Device MAC Address	00:00:0A:00:00:00
SSID	PODCA
Wireless Channel	3
Network Type	802.11n
AP MAC Address	00:0F:4A:27:14:00
Signal Strength	100% (54Mbps)
DHCP Client	Enabled
DHCP Server Address	192.168.1.2
IP Address	192.168.1.102
Subnet Mask	255.255.255.0

Below the table, there is a status message: 'The IP Address has been assigned by a DHCP server.' with 'Release' and 'Renew' buttons. Further down, it states: 'If the IP Address is released, the communication with the Ethernet Converter will be broken.' and 'The IP Address will return to the configuration of 192.168.1.102 or the Ethernet Converter Manager afterwards. If 192.168.1.102 or the Ethernet Converter Manager is unavailable, the Ethernet Converter can be accessed by its default IP Address of 1.1.1.1.'

Name and Password - This page contains settings that affect the naming and password protection of the Ethernet Converter.

- ▶ **Ethernet Converter Name** - The Ethernet Converter name is a quick reference name for the Ethernet Converter. It is only used for the naming of Ethernet Converters in the Ethernet Converter Manager.
- ▶ **Administrator Password** - The administrator password is used to protect the Ethernet Converter from unwanted configuration changes. Setting the password protects configuration changes from both the Web Based Configuration and the Ethernet Converter Manager. It is important to document the password after it has been set. If the password is lost, the Ethernet Converter must be re-initialized. The password must be entered twice, once for verification purposes.

The screenshot shows the 'Name and Password' page of the Buffalo AirStation web interface. The left navigation menu is the same as the previous screenshot. The main content area has two sections:

Network Security Setting: A dropdown menu set to 'DISABLED'.

Configuration Name: A dropdown menu set to 'not changed'.

Configuration Password: Two input fields for password entry, with a 'Confirm Password' label next to the second field.

Configuration Protection: Two checkboxes, both checked: 'Prevent Configuration from Wireless Clients' and 'Prevent Configuration from Wired Clients'. Below them is a note: 'If both configuration protections are set, then further administration is impossible. The device must be re-initialized to get access to the configuration pages.'

At the bottom is an 'Apply Settings' button.

- **Configuration Limitations** - The configuration limitations of the Ethernet Converter specify what types of clients can configure the Ethernet Converter through the Web Based Configuration. Prohibiting configuration from either wireless or wired clients can have negative effects on your ability to access the Web Based Configuration. Please be certain of your setting changes. Prohibiting configuration from wireless clients creates a rule that says any client that is connected to the Ethernet Converter wirelessly cannot access its Web Based Configuration. Prohibiting configuration from wired clients creates a rule that says any client that is hard wired into the Ethernet Converter's LAN port cannot access its Web Based Configuration. Prohibiting both configurations makes all Web Based Configuration attempts impossible. The Ethernet Converter must then be re-initialized to restore configuration capabilities.

Initialization and Reboot - This page contains settings that restart and re-initialize the Ethernet Converter.

- **Initialize** - Initializing the Ethernet Converter restores the Ethernet Converter's settings to the default settings. This will erase all configuration changes made, and the setup will have to be restarted as if the product was brand new. This will erase any passwords as well. Re-initialization can also occur without logging into the Ethernet Converter. Please see the troubleshooting section for that procedure.
- **Restart** - Restarting the Ethernet Converter performs a simple restart similar to what would occur if the power was cycled on the Ethernet Converter. No settings are lost in this case. The restart process takes 30 seconds and can be confirmed complete when the wireless light is green.



Firmware Update - This page contains settings that update the Ethernet Converter's Firmware.

- Updating the Ethernet Converter's firmware is a procedure where a user downloads a newer firmware from the Buffalo Technology Web Site and applies it to the Ethernet Converter. New firmware files contain new software code that adds bug fixes, additional features, increased performance, and revised interfaces.
- To update the firmware, press the '**Browse**' button and search for the downloaded firmware file. When complete, press the '**Firmware Update**' button. The firmware update process takes 90 seconds. After the firmware update is complete any previous configuration changes will remain unchanged.



Troubleshooting - Below are some common troubleshooting tips:

- **Re-initializing the Ethernet Converter** - Re-initializing the Ethernet Converter is the process of returning the Ethernet Converter to default settings. This process is used if you cannot access configuration anymore, have lost the password to the Ethernet Converter, or desire to return the settings to the factory settings.

To re-initialize the device, simply press the red INIT button on the underside of the Ethernet Converter for 5 seconds or until the AOSS light becomes red. The entire process takes 30 seconds. Afterwards, refer to the Quick Setup Guide to restart the configuration process of the Ethernet Converter.

Buffalo Technology offers toll-free technical support 24 hours a day, 7 days a week for this product. Customers in the United States and Canada can obtain technical support using the following information:

- ▶ Online Help: Available on the AirNavigator CD enclosed with your purchase.
- ▶ User Manual: Available on the AirNavigator CD enclosed with your purchase.
- ▶ Web **www.buffalotech.com/wireless**
- ▶ E-mail: **info@buffalotech.com**
- ▶ Telephone **866-752-6210** (USA & Canada only)

The constantly evolving state of wireless products and operating systems requires Buffalo Technology to occasionally release updated software to take advantage of new technologies and to comply with industry standards. For the most recent software, firmware, driver, and technical whitepaper releases available, please visit the Buffalo Technology website.

FCC Compliance Statement - This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

R&TTE Compliance Statement - This equipment complies with all the requirements of the DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of 9 March 1999 on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity (R&TTE). See the user manual for the complete statement.

** 54 Mbps is the IEEE 802.11g standard theoretical maximum data transfer rate. Actual wireless network throughput is limited by environmental and system factors and will be less.*

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Buffalo Technical Support Information

(Please have your Proof of Purchase when calling Buffalo Technical Support)

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